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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/737,318	12/15/2003	David W. Morris	CHIR0018-100 (23352.0001)	1869

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EXAMINER	
YAO, LEI	

ART UNIT	PAPER NUMBER
1642	

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/737,318	MORRIS ET AL.	
	Examiner	Art Unit	
	Lei Yao, Ph.D.	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *50 and 73-82* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *50 and 73-82* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group VIII in the reply filed on 11/15/05 is acknowledged. The traversal is on the ground(s) that search some of the groups together, such as would not impose a serious burden on the examiner.

These have been considered, but not found persuasive. Applicants assert that Groups VIII and XII or Group X and XI should be searched together because they have same classification. In response this argument, Group VIII is a method of screening an anticancer drug by detecting a gene expression modulated by a molecule and Group XII is a method of diagnosing a cancer by detecting the levels of gene expression. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are drawn to method using different materials that have different functions. The method of screening for anticancer activity of Group VIII requires searching for an inhibitor for cancer activity, however the method of group XII is involved in the detecting the gene expression for determining the cancer condition. Both methods may need different patient populations. Because each invention group either requires different materials, also have different method step or objective, the searching of the two methods together are not co-extensive in non-patent literature and US patent database, which would impose a serious search burden. For this reason, the restriction requirement is deemed to be proper and is adhered to. The requirement is therefore made **FINAL**.

Claim 50 is amended. Claims 1-49 and 51-72 have been canceled. Claims 73-82 are added. Claims 50 and 73-82 are pending and will be examined on the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

As drawn to enablement:

Claims 50 and 73-82 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The factor considered when determining if the disclosure satisfies the enablement requirement and whether any necessary experimentation is undue include, but are not limited to: 1) nature of the invention, 2) state of the prior art, 3) relative skill of those in the art, 4) level of predictability in the art, 5) existence of working examples, 6) breadth of claims, 7) amount of direction or guidance by the inventor, and 8) quantity of experimentation needed to make or use the invention. *In re wands,* 858 F.2d 731, 737.8 USPQ2d 1400, 1404 (Fed. Cir. 1988)

The set of claims is drawn to a method for screening for anticancer activity comprising detecting a difference between the levels of an expression products of cancer associated gene comprising a nucleotide sequence having at least 95% sequence identity to a sequence of SEQ IN NO: 57 or complement thereof in the presence or absence of anticancer drug candidate, wherein the anticancer drug candidates comprise organic compound and anticancer activity comprise inhibition of transcription of the gene expression.

To satisfy the requirement of 112, 1st paragraph, it is necessary that the specification provide an enabling disclosure of how to make and use a claimed invention. The method objective of claims is a method for screening an anticancer drug for inhibiting transcription of gene having at least 95% identity to a sequence of SEQ ID NO: 57. Thus, it would be expected that one of skill in the art would be able to **determine** a composition, which would inhibit a cancer activity by inhibiting transcription of a gene at least 95% identity to a sequence of SEQ ID NO: 57 without undue experimentation by using the claimed method.

Instant specification, on page 4-5, paragraph 13-18, states that present invention provides methods for screening for compositions which modulate cancers activity, a methods of inhibiting proliferation of a cell, and a method of screening drug candidates comprises providing a cell that expresses a cancer-associated (CA) gene or fragments. The specification, on page 65-76, teaches commonly used drug screening methods in the art for anticancer activity. The specification, beginning on page 77, further teaches commonly used inhibitors and compositions for inhibition for cancer growth, such as antisense molecule or interfering RNAs. However, the specification does not teach any working example, which enables any inhibitor, or any composition that exhibits any anticancer activity listed in the claims. The specification does not teach any working example having identified a anticancer drug candidate, which could modulate the levels of expression of a gene at least 95% identity to a sequence of SEQ ID NO: 57. The specification does not teach any identified inhibitor, which could inhibit the transcription of a gene having at least 95% identity to a sequence of SEQ ID NO: 57.

It is also know in the art that even a single modification or substitution in a protein sequence can alter the protein function. Protein chemistry is probably one of the most unpredictable areas of biotechnology. For example, the replacement of a single lysine at position 118 of the acidic fibroblast growth factor by a glutamic acid led to a substantial loss of heparin binding, receptor binding, and biological activity of the protein (Burgess et al, Journal of Cell biology, Vol 111, p2129-2138, 1990). These references demonstrate that even a single amino acid substitution or what appears to be an inconsequential chemical modification, will often dramatically affect the biological activity of the protein.

Therefore, the commonly used method for drug screening only allow one skill in the art **to try** the method for screening a molecule for inhibiting a expression of a protein or anticancer activity without knowing any structural or function attribute of the compounds and there is **no guarantee of success** to identify a compound that could inhibit the levels of gene expression of a gene having at least 98% identity to a sequence of SEQ ID NO: 57. Without knowing any specific compound having been identified by the claimed method, without knowing that the method has been practiced and resulted in identifying a compound, which could change the levels of the expression of a gene having at least 98% identity to a sequence of SEQ ID NO: 57, one skilled in the art would not know how to use the claimed method to

screen the composition that could change the gene expression of said gene (SEQ ID NO: 57) and its variants on the basis of teachings in the prior art or instant specification.

In view of the lack of guidance, lack of examples, and lack of predictability associated with regard to screen a drug candidate having an anticancer activity, one skilled in the art would be forced into under experimentation in order to practice the broadly claimed invention.

As drawn to written description:

Claims 50 and 73-82 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims encompass a method of screening for anticancer activity comprising detecting a difference between the levels of an expression of cancer associated (CA) gene product comprising a nucleotide sequence having at least 95% sequence identity to a sequence of SEQ ID NO: 57 or a complement thereof. The specification on page 41 paragraph [0123] states that Polypeptide refers to both the full-length polypeptide encoded by the recited polynucleotide, as well as portions or fragment thereof and invention encompasses variants of the naturally occurring proteins. The specification on page 43, paragraph [0127], also states that the naturally occurring protein variants are directed to proteins containing polypeptide sequence at least 80% identical to a CA protein, which comprises a protein encoded by SEQ ID NO: 57. Therefore, the claims are inclusive of a method of screening for anticancer activity to detecting a difference between the levels of expression of a genus of fragments, variants, a polypeptide encoded by SEQ ID NO: 57. However, the written description in this case only sets forth a protein having an amino acid sequence encoded by nucleotide, SEQ ID NO: 57.

A description of a genus may be achieved by means of a recitation of a representative number of species falling within the scope of the genus or by describing structural features common the genus that "constitute a substantial portion of the genus." See University of California v. Eli Lilly and Co., 119 F.3d 1559, 1568, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997): "A description of a genus of cDNAs may be

achieved by means of a recitation of a representative number of cDNA, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to the members of the genus, which features constitute a substantial portion of the genus."

The court has since clarified that this standard applies to compounds other than cDNAs. See University of Rochester v. G.D. Searle & Co., Inc., __F.3d__,2004 WL 260813, at *9 (Fed.Cir.Feb. 13, 2004). The instant specification fails to provide sufficient descriptive information, such as definitive structural or functional features that are common to the genus. That is, the specification provides neither a representative number of polypeptides that encompass the genus of a protein or variants having at least 95% sequence identity to the amino acid sequence encoded by SEQ IND NO: 57, in which their activities or its levels of expression in the cancer condition can be modulated by a molecule, nor does it provides a description of structural features that are common to the protein encoded by a polynucleotide (SEQ ID NO: 57) associated with cancer activity, which is inhibited by a compound. Since the specification fails to describe the common attributes or characteristics that identify members of the genus, and because the genus is highly variant, the disclosure of *the* species of polypeptides insufficient to describe the genus. Thus, one of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe and enable the genus as broadly claimed.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116). As discussed above, the skilled artisan cannot envision the detailed chemical structure(s) and functional attribute(s) of the encompassed genus of polypeptides, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481 at 1483. In *Fiddes*, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence. Therefore, only the method for screening for anticancer activity by detecting the levels of expression of a protein encoded by polynucleotide, SEQ ID NO: 5, which is inhibited by a compound, but not the full breadth of the claims, meets the written description provision of 35 U.S.C. §112, first paragraph. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lei Yao, Ph.D. whose telephone number is 571-272-3112. The examiner can normally be reached on 8am-4.30pm Monday to Friday.

Any inquiry of a general nature, matching or file papers or relating to the status of this application or proceeding should be directed to Kim Downing for Art Unit 1642 whose telephone number is 571-272-0521

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew can be reached on 571-272-0787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lei Yao, Ph.D.
Examiner
Art Unit 1642

LY

SHEELA HUFF
PRIMARY EXAMINER